CHARGE NUMBER: 1716

PROJECT TITLE: Tobacco Microstructure

PROJECT LEADER: Mary Ellen Counts

PERIOD COVERED: August 1-31, 1981

DATE OF REPORT: September 9, 1981

## $Ca^{45}$ AUTORADIOGRAPHY (S. E. Taylor, M. E. Counts)

Growing of bright 319 hydroponically in a nutrient solution to which the radioisotope calcium-45 was added has been successful. Bottom leaves are now being harvested. Several whole-leaf film autoradiographs have been obtained for these leaves. There appeared to be little difference in $Ca^{45}$ isotope distribution in the bottom leaves of plants fed all the $Ca^{45}$ dose at the beginning of the plant's growth and leaves from plants fed the isotope at increments during the plant's growth. The activity was primarily at the periphery of the leaves with relatively little activity in veins and mid-rib. Sections of leaf tissue were taken from several leaves and counted for activity in a scintillation counter. Although these measurements are qualitative, relative activity measured with the scintillator corresponded well with the calcium isotope distribution indicated by the autoradiographs.

These autoradiographs were obtained for uncured leaves. Similar autoradiographs and scintillation countings will be taken for leaves after curing. These tests will also be done with leaves of the upper stalk positions.

A tissue freezing liquid nitrogen refrigerator was obtained for long-term storage of the labelled tissue. Thin sections of tissue will be prepared for isotope location with emulsion autoradiography.

## RATOONED TOBACCO (M. E. Counts, S. E. Taylor)

Field-grown control 319 bright tobacco and ratooned 319 bright tobacco from the 1980 crop year which had been cured and expanded were examined for surface morphology. The results were compared to a similar study for the 1979 crop year, and the data were in general agreement. There was a considerable variation in upper epiderm cell size and shape for filler from a particular stalk position. The average cell area for the lower stalk positions of the ratooned and control tobacco filler was generally greater than that for filler from the upper stalk positions. It was interesting that these averages of cell size were not very different for filler from top to lower mid-stalk positions. This was similar to the trend seen for the 1979 field-grown crop. The greenhouse control and ratooned leaves, however, showed a more defined increase in average cell size area from top to

2022151437

Source: https://www.industrydocuments.ucsf.edu/docs/rgxm0000

bottom stalk positions. These differences in field-grown and greenhouse-grown tobacco cell size measurements will be investigated further.

Mary Ellen Counts

/llv

2022151438

Source: https://www.industrydocuments.ucsf.edu/docs/rgxm0000